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The Effectiveness of Hygienic Control of the Use of Pesticides in Agriculture

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THE EFFECTIVENESS OF HYGIENIC CONTROL
OF THE USE OF PESTICIDES IN AGRICULTURE
(Ob effektivnosti gigenicheskogo kontrolya
za primeneniem pestitsidov v sel'skom khozyaystve)

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THE EFFECTIVENESS OF HYGIENIC CONTROL
OF THE USE OF PESTICIDES IN AGRICULTURE

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In 1966, we studied causes of DDT contamination of animal food products on 3 farms in the Belozersk district--the S. M. Kirov collective farm, the E. Tel'man state farm and the collective farm, "Rossiya." Monthly samples were taken of their milk, feed and water for testing. The time and kind of crop treatment with poisonous chemicals were monitored at the same time. For a long period of time milk from the farms revealed residual amounts of DDT--from 0.3 to 1.5 mg/l. More than 90% of the feed tested contained 0.1-1.2 mg/kg of DDT. Most contaminated of all was wheat feed--middlings, straw, green shoots and bran. Slightly less of the poisonous chemical was found in corn silage, beets, oil meal, alfalfa, etc.

The more DDT contained in the feed, the more we found in the milk. In connection with this, it was suggested that feed which contained the highest amount of poisonous chemicals be excluded from the daily ration of milk cattle, or that their proportion in the diet be reduced. Changes in the diet have a seasonal character. The proportion of a particular feed is not the same for different kinds of cattle. We were obliged to create a diet which would consider the proportion of feed, the degree of DDT contamination and the possibility of substituting or reducing particular ingredients of the daily diet.

Together with other regional sanitary-epidemiological stations (Kakhovka, Genichesk), typical feed bases were compiled for 20 farms in various areas of the district. In the majority of cases, DDT was detected in the green mass of corn, wheat straw, middlings, corn, mixed feed, etc. It was not possible to determine the cause of contamination in all cases.

In determining contamination of the animal diet it was found that the proportion of grain is considerably less than that of concentrates and roughage.

In finding the level of contamination of the annual regional feed resource, it was established that only 1% of all the feed used comes from other regions, 99% is raised directly in fields of this district; half are concentrates (grain, mixed feed, etc.). Thus, DDT had to be eliminated from use in grain cultivation. In 1968, by our suggestion, the use of pesticides was basically stopped in the cultivation of winter wheat. Only isolated cases of its use were found in wheat fields. In 1968-1970, 400-600 hectares of wheat were cultivated, which is 40-50 times less than before 1968. This could not essentially influence the contamination of feed in the district as a whole. The percent of contamination of roughage in 1970, in comparison with 1966, was reduced to 15 (against 94.8), concentrates to 14.1 (against 83.6), grain to 8.8 (against 100). The degree of contamination of roughage was reduced from 1.1 to 0.005 mg/kg, concentrates from 1.45 to 0.2 mg/kg, grain from 1.37 to 0.08 mg/kg. This led to further reduction of the contamination of food products: meat products--from 85.8 to 24%, milk products--from 95.8 to 19.1%, milk from 88.27% and grain products--from 77.8 to 6.8%. The degree of contamination of meat products decreased from 4.8 to 0.03 mg/kg, milk products from 4.7 to 0.08 mg/kg, milk from 1 to 0.06 mg/l, grain and grain products from 0.98 to 0.01 mg/kg.